

## **Week 05**

### **C Concepts**

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#### **Assignment 1 - Tic-Tac-Toe (Due March 21st)**

Write a program that simulates Tic-Tac-Toe. Assume all the normal rules for tic-tac-toe. 3 in a row in any direction wins the game. If all spaces are filled and no player has a match the game results in “Cats Game”. A space can not be selected if it is already occupied.

Hint: Start by using a 2D array of chars. Initializing the array to char of ‘ (blank space) will make this assignment much easier to code.

#### **Grading Rubric:**

##### **15 Points Program Compiles**

- **Provide a sample output of cats game and a normal run**

##### **15 Well Purposed Control Flow**

- **Identifying segments of code for reuse. *Hint* P1 & P2 should use the same code where applicable.**

##### **10 Points for Documentation**

- **Well Thought Out Comments that describe the purpose of functions, conditional statements, and loops.**
- **Descriptive Variable Names**

##### **40 Points Total**

Please refer to the sample output to view what is expected from you.

## Normal Game Example

```
Welcome to Tic-Tac-Toe
=====
Player 1 turn 'X'
| |
-----
| |
-----
| |
-----
Which Row would you like?
0
Which Col would you like?
0
Player 2 turn 'O'
X| |
-----
| |
-----
| |
-----
Which Row would you like?
1
Which Col would you like?
0
Player 1 turn 'X'
X| |
-----
O| |
-----
| |
-----
Which Row would you like?
1
Which Col would you like?
1
Player 2 turn 'O'
X| |
-----
O|X|
-----
| |
-----
Which Row would you like?
1
Which Col would you like?
1
Illegal Move
Which Row would you like?
0
Which Col would you like?
2
Player 1 turn 'X'
X| |O
-----
O|X|
-----
| |
-----
Which Row would you like?
2
Which Col would you like?
2
X Player Wins!
X| |O
-----
O|X|
-----
| |X
```

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## Cat's Game Example

```
0
Player 1 turn 'X'
O| |X
-----
|X|
-----
O| |
-----
Which Row would you like?
1
Which Col would you like?
0
Player 2 turn 'O'
O| |X
-----
X|X|
-----
O| |
-----
Which Row would you like?
1
Which Col would you like?
2
Player 1 turn 'X'
O| |X
-----
X|X|O
-----
O| |
-----
Which Row would you like?
2
Which Col would you like?
2
Player 2 turn 'O'
O| |X
-----
X|X|O
-----
O| |X
-----
Which Row would you like?
2
Which Col would you like?
1
Cat's Game!
O|O|X
-----
X|X|O
-----
O|X|X
```

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